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Food / Now: On Climate Mitigation, Sustainable Farming and Food Security in Massachusetts

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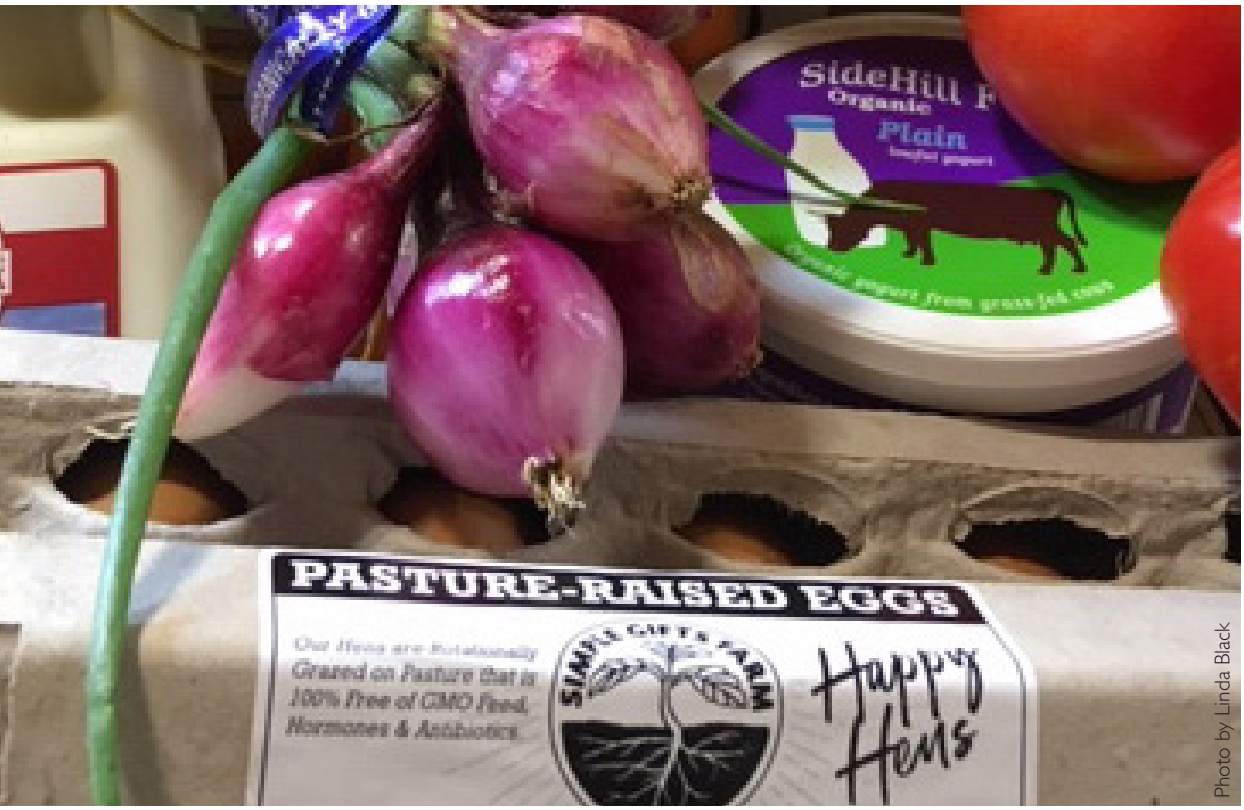
FOOD/NOW



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On Climate Mitigation, Sustainable Farming and FOOD SECURITY IN MASSACHUSETTS

White Paper by Linda Black

Climate change is impacting every aspect of our lives and demands heightened attention. The implications with regard to food security are vast, and inseparable from farming practices and soil health.

FOOD SECURITY

Neighborhood Farms

Looking To the Future

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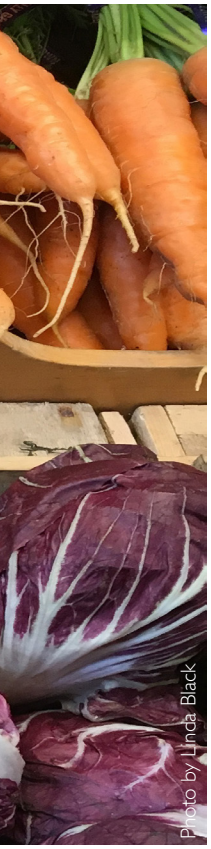

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CLIMATE MITIGATION

Executive Summary

Fostering self reliance in community.

The global scientific community sees climate change as an existential threat and the greatest challenge of the 21st century.[1] There is a distinct correlation between climate change, agricultural practices, and food insecurity. All of this speaks to the urgent need to address hunger in America in this larger context. Even more so, given how the US is a primary contributor to the climate crisis—due in no small part to the monocrop paradigm of big agribusiness.

The USDA's Economic Research Service attributes 9.6% of the country's total greenhouse gas emissions to agriculture, but that figure does not take into account the relationship between agribusiness and transportation—a significant greenhouse-gas contributor, at 29%—and the vast network of transportation and storage (refrigeration) systems and practices required to support agribusiness.[2] Massachusetts is a leader in creating and supporting initiatives that promote sustainable farming and food security, but there is much to be done. To effectively alleviate food insecurity, it must be addressed under the umbrella of climate change.

SOIL HEALTH → CARBON REDUCTION → FOOD SECURITY

USDA GREENHOUSE GAS EMISSIONS BY INDUSTRY IN THE US IN 2017

AGRICULTURE	9.6%
RESIDENTIAL	14.9%
COMMERCIAL	16.1%
TRANSPORTATION	29.0%
INDUSTRY	29.7%

"Soil degradation may well be the oldest and most enduring environmental problem... One can, after all, measure the lifespan of a civilization by how fast that civilization erodes its topsoil."[3]

Danika Desai, NYU Environmental Law Journal

Objectives

Policy that mitigates climate change, fosters sustainable farming practices, and promotes food security.

- To look to the future of food security, sustainable farming practices, and climate-change mitigation in Massachusetts.
- To consider the following policies, and how they support food security within the climate change context: The Healthy Incentives Act, Healthy Soils Act, and Act to Promote Urban Agriculture and Horticulture.
- To consider the Green New Deal and its applicability to Massachusetts, how its objectives are relative to the above Acts, and how the broad vision it expresses can inform policy.

A primary factor in food insecurity is lack of access to fresh, local food, with access limited economically, spatially, and conceptually. This paper seeks to understand policy toward achieving net-zero carbon status, implementing sustainable farming practices, and fostering food security and self-reliance in Massachusetts.

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Essential Policy

BILL H.4232 HEALTHY INCENTIVES ACT

An Act Relative to an Agricultural Healthy Incentives Program: Increasing access to fresh, local food and supporting small farms.[4]

BILL S.2404 HEALTHY SOILS ACT

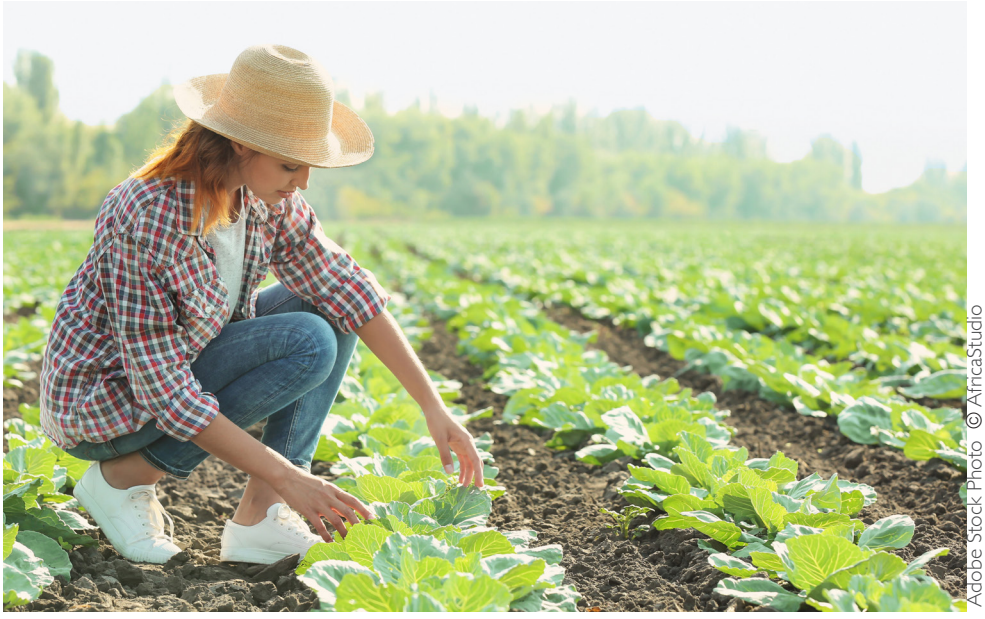
An Act to Promote Healthy Soils and Agricultural Innovation in the Commonwealth: Mitigating climate change and fostering sustainable farming practices.[5]

BILL S.1691/H.2551 URBAN AGRICULTURE ACT

An Act to Promote Urban Agriculture and Horticulture: Empowering communities, creating jobs, increasing food security.[6]

U.S. H.RES-109: THE GREEN NEW DEAL

A Resolution Recognizing the Duty of the Federal Government to create a Green New Deal: Addressing social and economic concerns as climate change issues.[7]



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"For every six farmers over the age of 65, there is only one under 35."[8]
—How We Grow (documentary)

HEALTHY INCENTIVES PROGRAM

A 2011-2012 Massachusetts pilot program was the impetus and model for the federal GusNIP grant program, which was adopted under the Farm Bill.[9] The state Healthy Incentives Program (HIP) that evolved out of the pilot is under threat. Enacting Bill H.4232 will secure the program, which has helped to alleviate food insecurity for thousands of Massachusetts families.

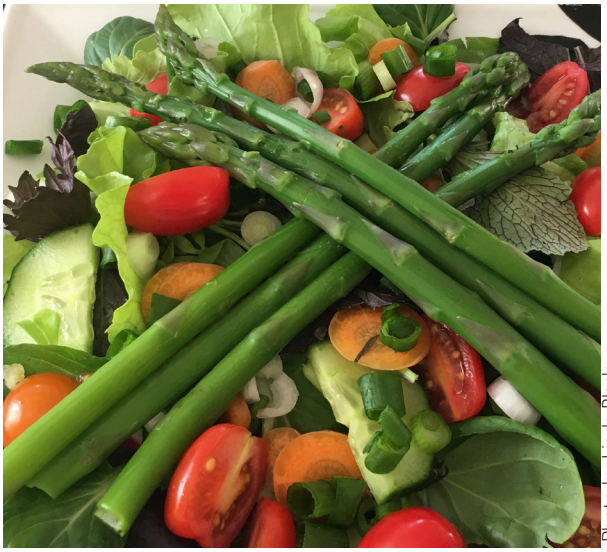


Photo by Linda Black

HIP-supported • Massachusetts grown

HEALTHY SOILS ACT

Historically under US policy, soil management has been designated as land use. Thus, it is often subject to the stewardship (or not) of private landowners. A factor that is in stark contrast to air and water systems, which are under the purview of government bodies, given the impact on the health and wellbeing of the public and environment.[10] The Healthy Soils Act speaks to the broader implications of soil management, as a global imperative to further climate mitigation, foster economic growth, and promote food security.

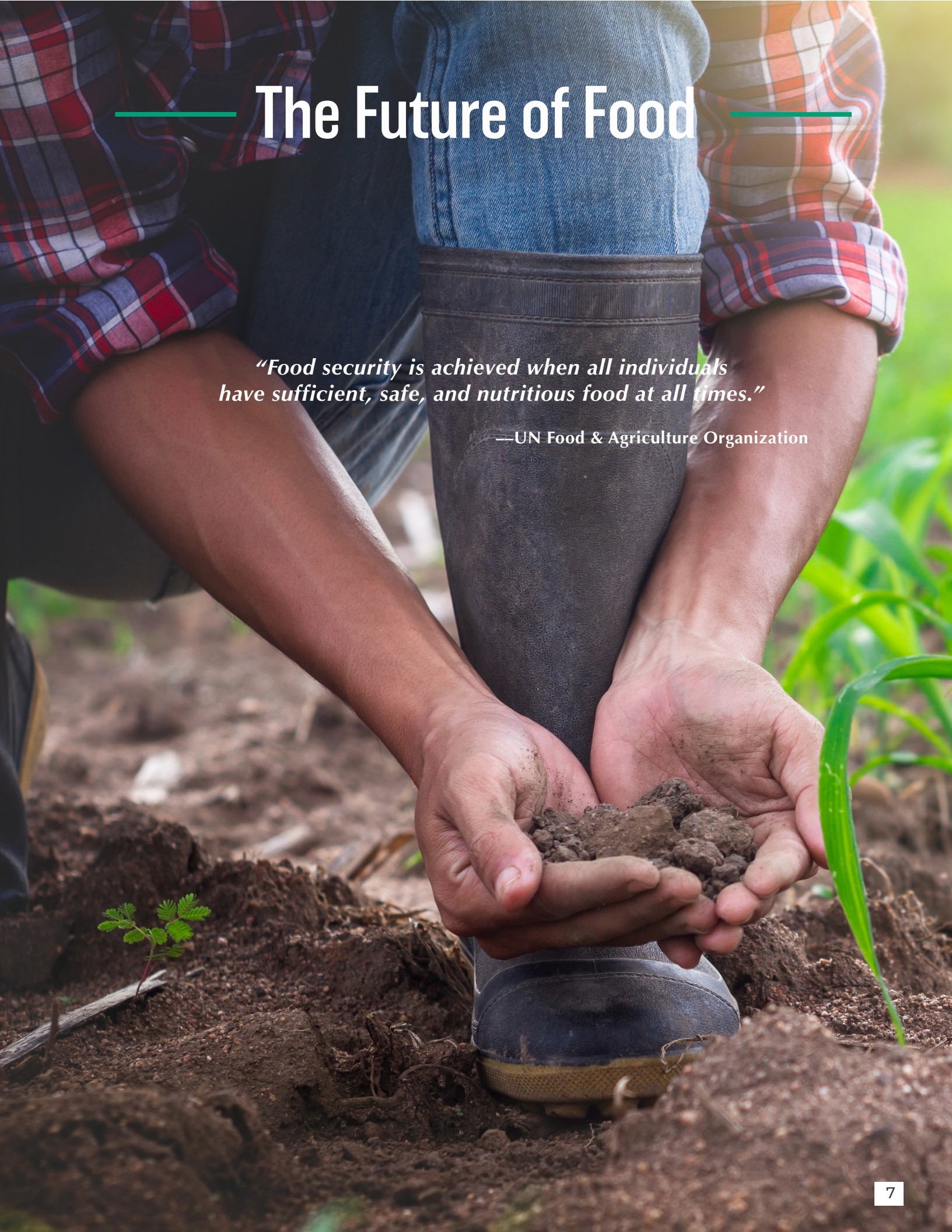
URBAN AGRICULTURE ACT

By 2050, two thirds of the world's population will live in urban communities.[11] Boston and Springfield are its only large cities but Massachusetts has a high population density, and most of its residents live in towns.[12] In the context of food security, that is urban living. The Urban Agriculture Act addresses a primary factor in food insecurity, one that is particularly prevalent in urban communities: lack of access to fresh food. In addition to providing such access, urban farms create jobs and stimulate local economies.

THE GREEN NEW DEAL

Though it is at a stalemate in Congress, the proposed federal policy known as the 'Green New Deal' serves as a call to action. The Resolution reiterates findings by the International Panel on Climate Change (IPCC) and the Fourth National Climate Assessment Report (released in 2018) to underscore its objectives. The IPCC and Report conclude that human activity is "the dominant cause of observed climate change" over the past century.[13] Among such observed changes are the increase in severity and frequency of "wildfires, severe storms, droughts, and other extreme weather events that threaten human life."[14] Given the urgency of addressing the climate crisis as an existential threat, the Green New Deal proposes a set of objectives in that global context, and yet one that is applicable to any community, anywhere on the planet. As such, we might look to economics, industry, social justice, environmental justice, agricultural practices, transportation, food security, and so on as interrelated systems and concerns, in the manner demonstrated under the Green New Deal.

The Future of Food



"Food security is achieved when all individuals have sufficient, safe, and nutritious food at all times."

—UN Food & Agriculture Organization

Five Principles

Identified by the UN Food & Agriculture Organization as crucial to sustainable agricultural practices and food security in the 21st century.[15]

EFFECTIVE GOVERNMENT
"Responsible, effective government mechanisms"

CONSERVATION
"Direct action to conserve, protect, and enhance natural resources"

RESILIENCE
"Enhanced resilience of people, communities, and ecosystems"

RURAL LIVELIHOODS
"Protect and promote rural livelihoods, equity, and social wellbeing"

EFFICIENCY
"Improved efficiency in the use of resources"

Healthy Incentives Act

The Healhty Incentives Program (HIP) has helped to alleviate food insecurity for thousands of Massachusetts families, supported sustainable farming practices, and improved the livelihoods of hundreds of independent farmers, farming cooperatives, and farm markets.[16]

The Trump administration's harsh anti–Public Assistance agenda will further impoverish millions of Americans struggling with food security. Under new USDA policy, almost four million people will lose Supplemental Nutrition Assistance Program (SNAP) benefits in 2020, and one million children will become ineligible for free school lunches.[17] Codifying HIP via Bill H.4232 will help to minimize the impact of federal policy on Massachusetts residents.

SNAP

Supplemental Nutrition Assistance Program

Under the new 'reduced income cap' policy taking effect in April of 2020, some 3 million people will lose SNAP benefits.[18] Another 700,000 recipients will be cut from the program under the 'able body' rule.[19] Though a federal judge blocked the rule that would deport legal aliens who access any public program, thousands of people withdrew from SNAP for fear of deportation.[20]

The restrictions it has successfully implemented—lowering the income cap, and requiring that single people between the ages of 18 and 49 work at least 20 hours per week to qualify for SNAP—demeans those who struggle economically. There are many reasons why such an individual might not be able to work 20 hours per week. Depriving them of food will not further their employability, but decrease it, and in Massachusetts, the policy means 35,000 people will lose SNAP benefits.[21]

Yet another proposed SNAP-reducing rule—and one that is still on the table—further strips recipients of dignity, that being to replace half of the monetary SNAP benefit with a 'Harvest Box' that would include government-determined staples such as beans, peanut butter, and 'shelf-stable' milk.[22] Stripping people of choice will not increase food security, but rather restrict it by decreasing access to fresh food.[23]The instability of SNAP underscores the need for states to enact policy that helps to protect its vulnerable populations and enables communities to foster food security towards self reliance.

"A healthy diet is the solution to many of our health care problems."

—John Mackey, Whole Foods

FRESH FOOD FOR HEALTH

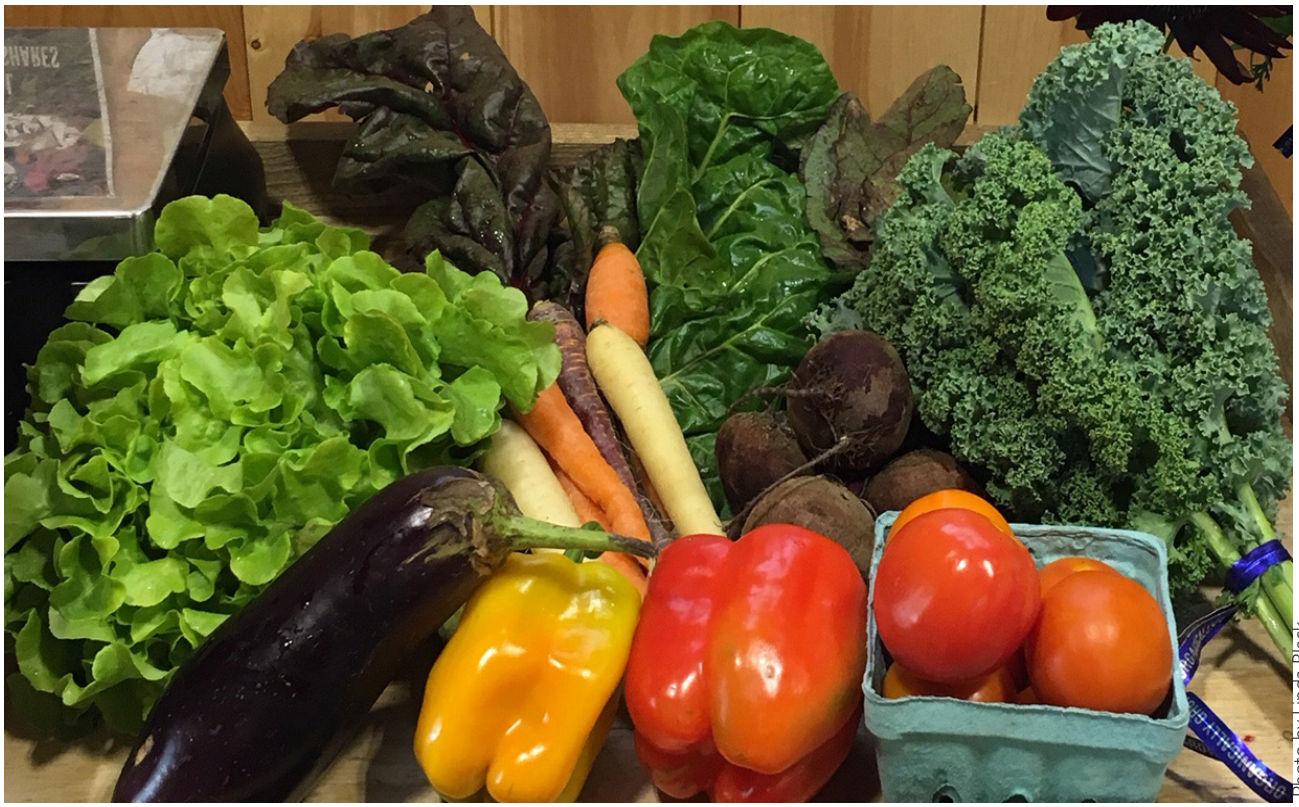


Photo by Linda Black

$20 in HIP-purchased produce from Simple Gifts Farm in Amherst, Massachusetts.

HIP

Healthy Incentives Program

Since its launch in 2017 and as of March 2019, 55,000 Massachusetts families have purchased $9 million dollars of produce from Massachusetts farmers.[24] Despite its success, the Healthy Incentives Program is fragile. The program is continuously under threat of closure due to unstable funding. For example, HIP was forced to a halt from February through May of 2019. Also, the federal program under which HIP operates, GusNIP, is experiencing negative infrastructure changes, with substantial staff cuts and the relocation of NIFA (National Institute of Food and Agriculture) to Kansas City, which will make access to funding all the more challenging.[25]

It is critical to the wellbeing of Massachusetts' vulnerable populations and its communities at large that HIP be codified into law. The program is complimentary to and can work in tandem with the Healthy Soils Act and Act to Promote Urban Agriculture and Horticulture, as each Act addresses climate change, sustainability, and food security. HIP stimulates the economy in multiple ways: It expands the customer base for independent farmers, cooperatives, farm stores, and farm markets. More customers means higher demand; increased demand means higher sales; higher sales facilitate reinvestment and new investment in the small-farm industry, which provides job security for existing jobs and creates new jobs.

Healthy

95% OF FOOD FROM SOIL
The vast predominance of the world's food originates from soil.

SOIL LOSS 23 BILLION TONS
The earth loses about 23 billion tons of fertile soil annually.

1 CENTIMETER PER 1000 YRS
The formation of one centimeter of soil takes as long as a thousand years.

NEED 60% MORE FOOD
To meet global food demands by 2050, we need to produce 60% more food.

PRODUCE 58% MORE FOOD
Using sustainable soil practices we can produce 58% more food.

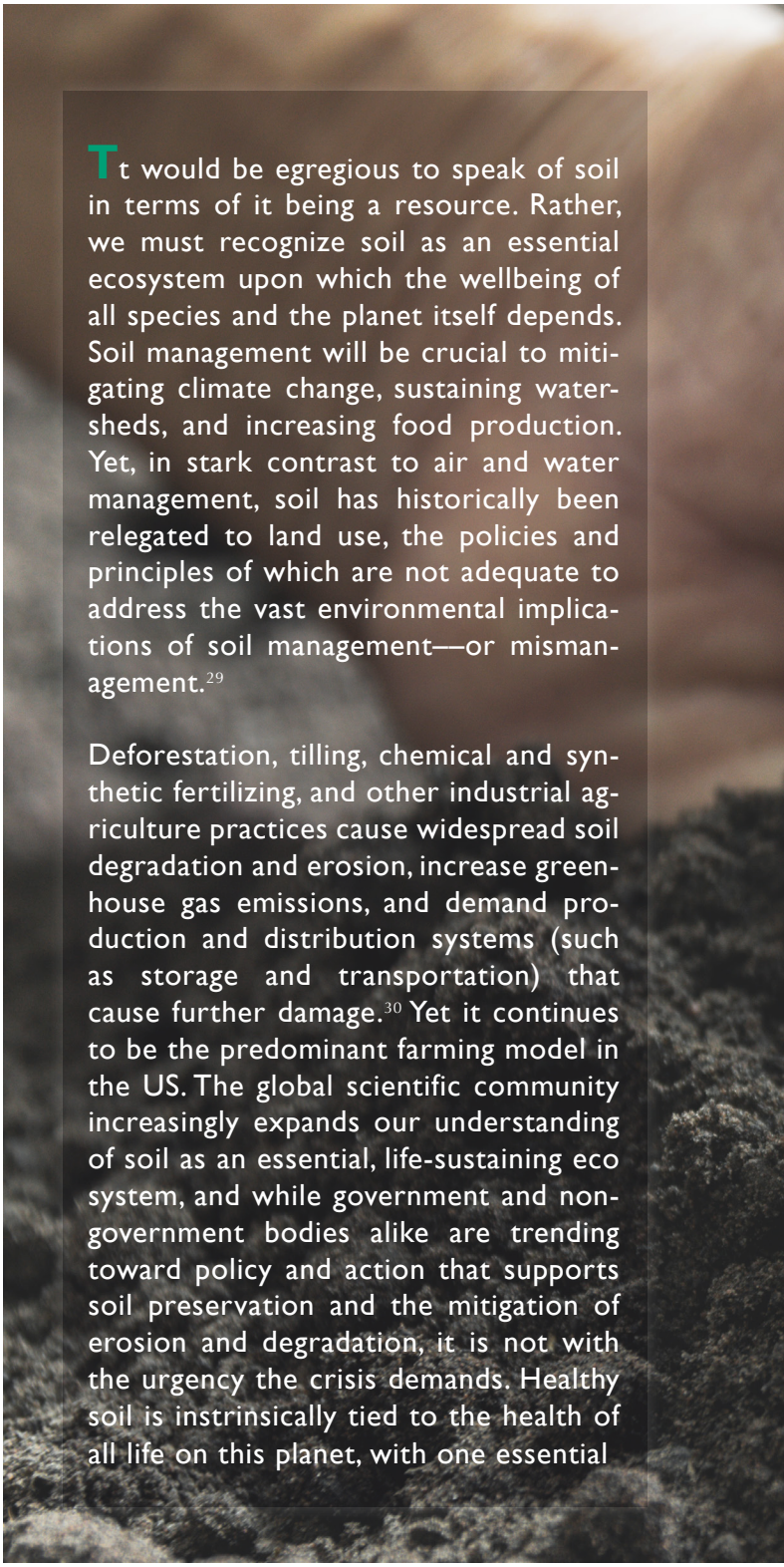
UN Food & Agriculture Organization Statistics [26]

THE HEALTHY SOILS ACT

Among its provisions, the Act seeks to improve soil quality on commercial farming lands, as well as parks, greenspaces, and other outdoor spaces; increase carbon sequestration to reduce the effects of climate change; and incentivize private and public landowners to engage in healthy soil practices.[27]

SUSTAINABLE SOIL PRACTICES

The Act defines healthy soil practices as those "that (i) improve measurable soil health... (ii) provide one or more of the following benefits: improve food production; encourage the health, growth and biological diversity of plants and forests; increase water infiltration reducing storm water runoff; provide drought and crop resilience, enhance water quality; and reduce the use of fertilizers and herbicides; and (iii) provide greenhouse gas benefits."[28]



It would be egregious to speak of soil in terms of it being a resource. Rather, we must recognize soil as an essential ecosystem upon which the wellbeing of all species and the planet itself depends. Soil management will be crucial to mitigating climate change, sustaining watersheds, and increasing food production. Yet, in stark contrast to air and water management, soil has historically been relegated to land use, the policies and principles of which are not adequate to address the vast environmental implications of soil management—or mismanagement.[29]

Deforestation, tilling, chemical and synthetic fertilizing, and other industrial agriculture practices cause widespread soil degradation and erosion, increase greenhouse gas emissions, and demand production and distribution systems (such as storage and transportation) that cause further damage.[30] Yet it continues to be the predominant farming model in the US. The global scientific community increasingly expands our understanding of soil as an essential, life-sustaining eco system, and while government and non-government bodies alike are trending toward policy and action that supports soil preservation and the mitigation of erosion and degradation, it is not with the urgency the crisis demands. Healthy soil is instrinsically tied to the health of all life on this planet, with one essential

HEALTHY SOIL → CARBON REDUCTION

Soils Act

component being the cycling of carbon, from the atmosphere, to plants, to soil, and back to the atmosphere. Having grown up with 'cliamte change' as part of the lexicon, emerging farmers are more likely to engage in sustainable farming practices,[31] but as noted in the documentary film How We Grow, "for every six farmers over the age of 65, there is only one under 35." The term 'healthy soil' is relatively new to agricultural discourse, and has generally been interchangeable with 'soil quality,' but the latter speaks to composition in terms of chemical components and pH levels while healthy soil encompasses the broader perspective of soil as a complex ecosystem essential to the health of the environment.[32] The UN FAO reports that healthy soil improves crop production by fostering a diveristy of organisms to ward off disease, support root systems, and maximize water-holding capacity, which can be especially significant during droughts.[33]

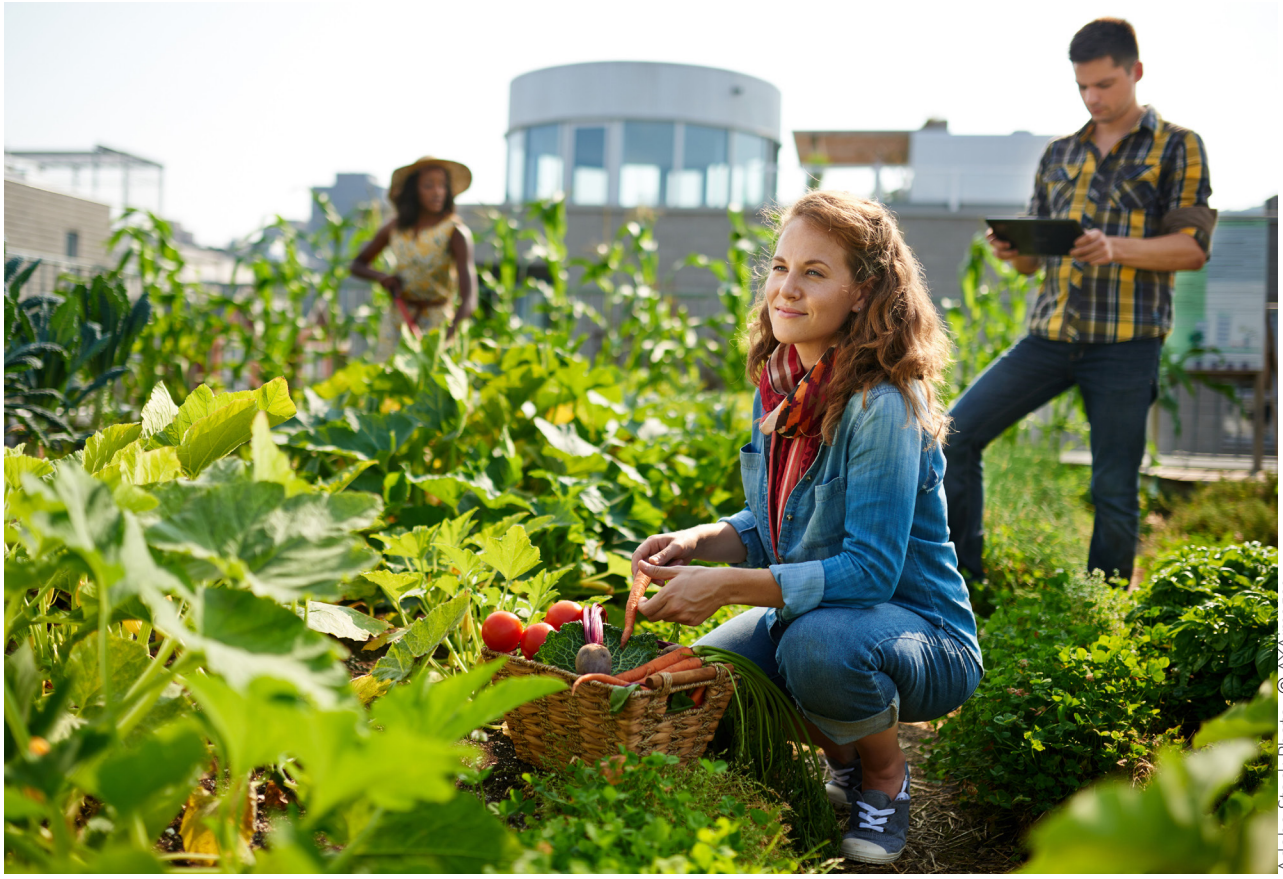
Regionality is a significant factor in agriculture policy, as farmers in different regions face different environmental challenges.[34] When regional concerns are not addressed, it undermines the potential for sustainable and economically viable farming practices. It is critical to the environmental stability and economic viability of the region that the Healthy Soils Act be passed and implemented. In addressing soil health, the Act will help farmers generate higher yields, and in doing so, will also increase access to fresh, local food. Incentivizing farmers to implement sustainabile technologies is also critical in mitigating climate change.

The Act is symbiotic with federal programs operating at the state level, such as Massachusetts Conservation Stewardship Program, a primary component of which is the provision of "financial benefit to farmers who are already responsible stewards, while also encouraging others to… adopt beneficial land management practices."[35] The Act is also complimentary to the Beginning Farmer and Rancher Development Program (BFRDP) under the Farm Bill,[36] and will provide infrastructure support to GusNIP and SNAP—both of which are under threat. It will incentivize beginning farmers to commit to the field and support them in undertaking sustainable farming practices from the onset. It will support conversion to sustainable practices by farmers locked into environmentally and economically unsound practices due to financial and/or operational constraints. It will encourage further investment in small farms and increase local market supply and demand. By all of the above, the Act will be instrumental to mitigating climate change, promoting sustainable agricultural practices, stimulating economic growth, and achieving food security in Massachusetts communities.

Healhty soil practices include no-till seeding, grass stripping around fields to reduce nitrogen runoff, cover cropping, and composting.[37]

Urban Farming

The Act to Promote Urban Agriculture and Horticulture will create jobs, stimulate local economies, promote dignity, foster self-reliance, and reduce food insecurity for the underserved, vulnerable, and marginalized in Massachusetts.



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The Act provides incentive for innovative farming technologies and the repurposing of unused/wasted space into urban farms, freight farms, rooftop gardens, and high tunnels.

A greater percentage of the world's population than ever in human history lives in urban communities, and projections are that the city-to-rural living ratio will continue to rise, with an anticipated two-thirds of the population living in urban environments by 2050.[38] At the same time, big agriculture and monocrop practices and technologies are rendering vast portions of land unviable, and accelerating the climate crisis. We need to reduce barriers to untraditional farming, in particular small-parcel, urban, and peri-urban (adjacent to town/city) farming. Urban farms can be as high as 15 times more productive than traditional rural farms due to higher rotation, more diverse and higher-yield crops, and better (more easily managed) weather mitigation.[39]

RUAF Foundation studies speak to the multiple benefits of urban farming: Food sourced from urban farms by markets, restaurants, and public institutions such as hospitals and schools reduces costs, in both financial terms and environmentally, with lower carbon emissions; Locally grown food is fresher, necessitates fewer additives, and provides greater nutritional value than imported food.[40] Thus, access to local food via community gardens and urban farms improves the health and wellbeing of vulnerable members of community, in particular, children, pregnant and lactating women, the elderly, and those compromised by illness.[41]

Increased access to affordable, fresh, local food via urban gardens and markets decreases reliance on federal programs such as SNAP. The UN Food and Agriculture Foundation notes how urban farms provide jobs to marginalized and low or no-income persons, such as youth, the elderly without pensions, those who have served time and are returning to community, refugees, persons with disabilities, and persons struggling with addiction. Community gardens and urban farms have significant educational, cultural, and social value.

"Children are healthier ... fewer people are hungry, more local jobs are created, local economies are stronger, our neighborhoods are greener and safer, and our communities are more inclusive."

–– Peter Ladner, The Urban Food Revolution

GLOBALLY

- One fifth of the world's food comes from urban farms.
- One square meter of an urban plot can produce 20 kgs of food annually.
- 20% of food is wasted, largely due to inadequate distribution.
- As much as 10% of carbon emissions are from food waste.
- An urban farm can generate one job per 100 sq meters.
- The average age of primary (principal operator) farmers is 58.
- 38% of primary farmers are women.
- 65% of primary urban farmers are women.

Urban farming is particularly conducive to employing women, and to being woman owned/operated. It minimizes transportation challenges, and all but eliminates childcare costs as women can bring their children to work with them. It also provides immediate access to fresh food, which reduces food insecurity, especially for women-headed households.[42]

IN MASSACHUSETTS

- Massachusetts is the 7th smallest state but 3rd most densely populated.
- There are more than 7,000 farms on 500,000 acres of land.
- 94% are small farms, generating less than $250K annually.
- 21% of all agricultural sales are direct market, averaging $55K per farm.
- 10% of women live in poverty.
- 28% of women-headed households live in poverty.

Global statistics from UN Food & Agriculture Organization.[43] State statistics Mass.gov Agriculture Resources Facts & Statistics.[44]

The Green New Deal

The Intergovernmental Panel on Climate Change (IPCC)'s warning that we will exceed a 1.5°C rise (from pre-Industrial) temperatures by 2040, and 2°C by 2045 might fall short: We may well exceed 1.5°C in ten years.[45] Even if we have more than a decade to effectively mitigate climate change, it is very much the existential crisis the global scientific community has declared it to be.[46] As noted in the introdution to the Green New Deal, though the Resolution is at a stalemate at the federal level, its objectives are critical and must be pursued at state levels.

Food and agriculture policy has tended to separate itself from environmental damage, and while that is beginning to change—with policymakers more inclined to connect the dots between climate change, soil erosion, drought, failing crops, and so on, there is still a gap when it comes to food security. At least, in the sense that food and agriculture policy focuses on providing band-aid measures to address food insecurity and hunger, as with the Farm Bill and provisions such as SNAP. Such provisions are critical to palliating hunger, but in the Matsuda critical theory sense of "looking to the bottom," achieving food security will require policy that goes to the core causes.[47] For instance, financial lack: The inability of the impoverished to invest in sustainable technology, or to be invested in to start a business—an urban farm, for example, amplifies the food security issue.[48] There is an urgency to addressing all of these issues under one umbrella.

Meanwhile, the United States is one of the largest contributors to the climate crisis and the Trump administration's denial of the crisis has devastating consequences. Certainly, in impeding America's ability to meet our Paris Accord commitments, but also for its derision of the global mobilization the Agreement had initially generated.[49] That divide was evident at the December 2019 UN Convention on Climate Change in Madrid, where a primary goal—to get the highest-polluting nations to agree to aggressively pursue their Paris objectives—failed.[50] As noted in *The Washington Post*, international divisions and "lack of momentum threaten the effort to limit the warming of Earth and avoid dangerous levels, only four years after the Paris agreement produced a moment of global solidarity."[51]

Every policy Massachusetts (or any state) enacts toward the achievement of the objectives outlined in the Green New Deal betters our own communities and the whole of the planet. Reversely, embracing and supporting the vision of the Resolution fosters support of state policy, such as the Healthy Incentives Act, Healthy Soils Act, and Act to Promote Urban Agriculture and Horticulture. The Green New Deal can serve as a roadmap for finding common ground, where actors with conflicting interests or between whom there seems to be no relationship can find shared objectives: For instance, the construction, waste management, and agriculture industries—how abandoned buildings might be repurposed as community gardens or urban farms, which would, in turn, utilize waste as compost.[52] By addressing the above Acts as being pertinent to each other and as part of a greater Green New Deal sort of vision, the Commonwealth will continue to emerge as a leader in combating the climate crisis, promoting sustainable agriculture, and improving food security.

GREEN NEW DEAL OBJECTIVES

NET-ZERO CARBON
To achieve a net-zero carbon (greenhouse gas) emission status by 2050.

ECONOMIC STABILITY
To achieve 'true' economic stability by creating millions of well-paying jobs.

INVESTMENT
To invest in infrastructue & industry, especially those related to sustainbility.

CLIMATE RESILIENCY
To secure clean air, water, and healthy food, and generate climate and community resliliency.

PROMOTE JUSTICE
To promote justice and equality for all members of society.

Conclusion

Food Security Starts Here

Daunting though it is, we must take immediate, aggressive, and direct action to combat the climate crisis. Just as human behavior has in large part caused the crisis, human behavior will be paramount in mitigating the damage and creating a viable future for ourselves, future generations, and all species on the planet. We must become the good stewards we have the knowledge, technology, and ability to be. Just as soil is a complex and symbiotic ecosystem, human existence occurs as a complex, symbiotic, and global ecosystem. Everything we do impacts the wellbeing (or not) of the human ecosystem. We have the means to feed everyone on the planet, but vast populations live in poverty, because food insecurity is not a stand-alone issue. It is intrinsically tied to every other aspect of human life, to the condition of the planet and to the conditions of society:

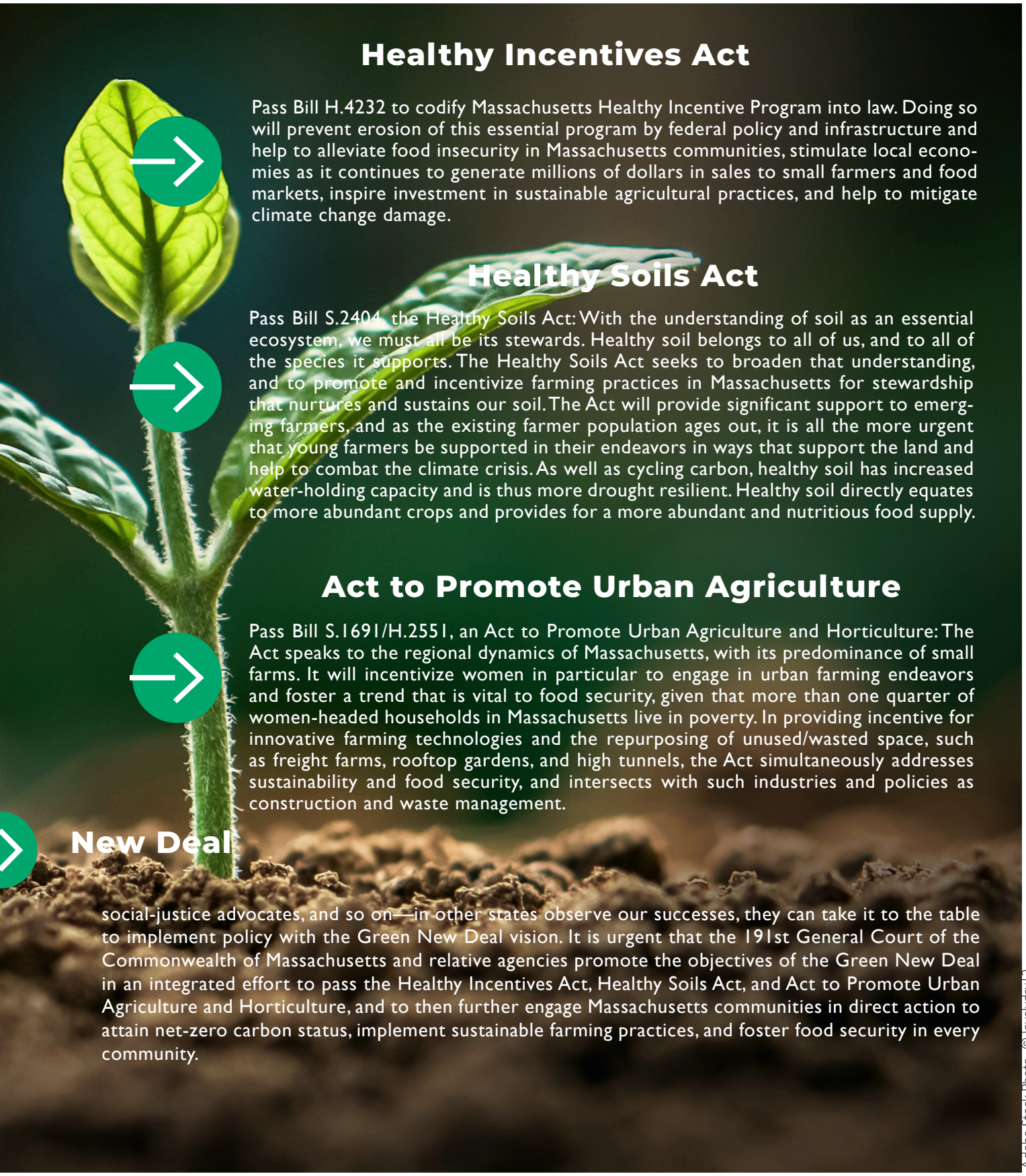
If we are addressing climate change, we are addressing food insecurity;
If we are addressing agricultural practices, we are addressing social injustice;
If we are addressing unemployment, we are addressing environmental injustice;
If we are addressing economic instability, we are addressing climate change.

We need to strengthen our economies at the local level, to be less susceptible to partisan policymaking at the federal level. The agenda of any given administration has far-reaching impacts, and can negatively impact vulnerable populations in extreme ways, which, in turn, impacts local economies, the environment, and food security. To wit, the current administration's anti–Public Services agenda. Looking at the Supplementary Nutrition Assistance Program alone, we can see how the punitive view that the administration takes towards vulnerable, disenfranchised, low-income individuals negatively impacts a community as a whole by imposing greater burdens on local infrastructure. The administration's attempt to use public programming as a tool to deport low-income legal residents demonstrates disdain for America's low and middle classes, and immigrants in particular. To foster dignity, self-reliance, economic stability, and wellbeing in our communities, we must take action at the state level, and approach policy as an ecosystem, an ecosystem in which the Healthy Soils Act, Healthy Incentives Act, and Act to Promote Urban Agriculture are dynamic and interactive components.

The Green

What Massachusetts does benefits the planet, because earth's atmosphere does not recognize the boundaries drawn on maps, nor in constitutions, treaties, or trade agreements. What we do to ensure soil health, viable watersheds, and better air quality has considerable impact beyond our borders. Every effort to combat the climate crisis matters. By reducing carbon emissions, sustainably growing more food in our communities (rural and urban), promoting health, and fostering food security, we set an example. When stakeholders—women-headed families, the unemployed, beginning and want-to-be farmers, farmers locked into unsustainable practices, private landowners, food networks, environmental agencies,

Recommendations



Healthy Incentives Act

Pass Bill H.4232 to codify Massachusetts Healthy Incentive Program into law. Doing so will prevent erosion of this essential program by federal policy and infrastructure and help to alleviate food insecurity in Massachusetts communities, stimulate local economies as it continues to generate millions of dollars in sales to small farmers and food markets, inspire investment in sustainable agricultural practices, and help to mitigate climate change damage.

Healthy Soils Act

Pass Bill S.2404, the Healthy Soils Act: With the understanding of soil as an essential ecosystem, we must all be its stewards. Healthy soil belongs to all of us, and to all of the species it supports. The Healthy Soils Act seeks to broaden that understanding, and to promote and incentivize farming practices in Massachusetts for stewardship that nurtures and sustains our soil. The Act will provide significant support to emerging farmers, and as the existing farmer population ages out, it is all the more urgent that young farmers be supported in their endeavors in ways that support the land and help to combat the climate crisis. As well as cycling carbon, healthy soil has increased water-holding capacity and is thus more drought resilient. Healthy soil directly equates to more abundant crops and provides for a more abundant and nutritious food supply.

Act to Promote Urban Agriculture

Pass Bill S.1691/H.2551, an Act to Promote Urban Agriculture and Horticulture: The Act speaks to the regional dynamics of Massachusetts, with its predominance of small farms. It will incentivize women in particular to engage in urban farming endeavors and foster a trend that is vital to food security, given that more than one quarter of women-headed households in Massachusetts live in poverty. In providing incentive for innovative farming technologies and the repurposing of unused/wasted space, such as freight farms, rooftop gardens, and high tunnels, the Act simultaneously addresses sustainability and food security, and intersects with such industries and policies as construction and waste management.

New Deal

social-justice advocates, and so on—in other states observe our successes, they can take it to the table to implement policy with the Green New Deal vision. It is urgent that the 191st General Court of the Commonwealth of Massachusetts and relative agencies promote the objectives of the Green New Deal in an integrated effort to pass the Healthy Incentives Act, Healthy Soils Act, and Act to Promote Urban Agriculture and Horticulture, and to then further engage Massachusetts communities in direct action to attain net-zero carbon status, implement sustainable farming practices, and foster food security in every community.

Endnotes

[1](i)Julia Hollingsworth, (June 4, 2019). Climate change could pose 'existential threat' by 2050. CNN. www.cnn.com/2019/06/04/health/climate-change-existential-threat-report-intl/index.html;
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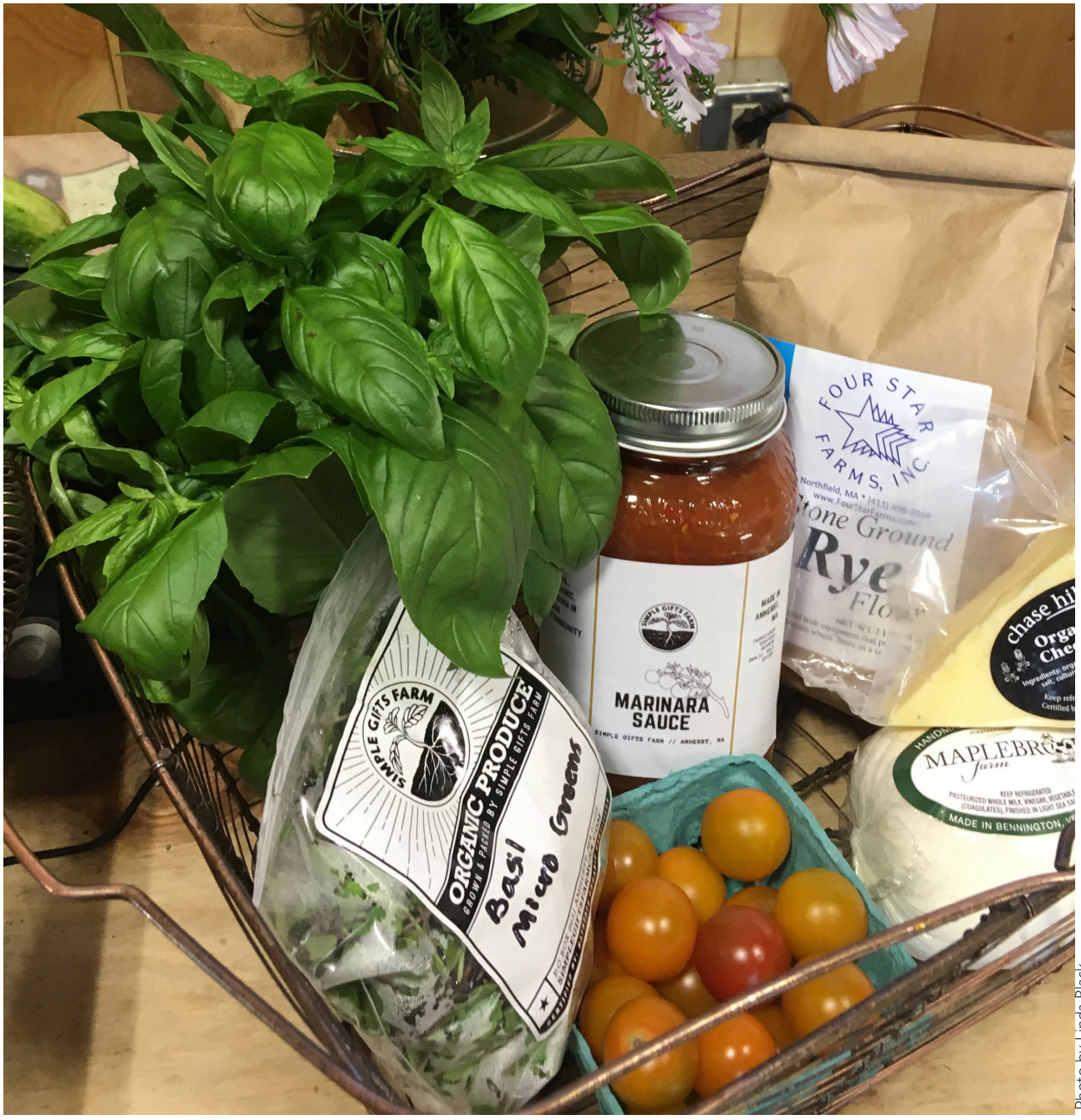

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Sustainably and locally-grown and produced by Massachusetts farmers and artisan food makers.